



New methods for ensemble generation in COSMO-DE-EPS

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COSMO-DE-EPS is the convection-permitting ensemble forecasting system used operationally at Deutscher Wetterdienst. New methods to account for forecast uncertainty in the ensemble are currently being developed, and some of these will be presented here.

A convection-permitting ensemble data assimilation system, KENDA, has been developed within the COSMO consortium, and this delivers an ensemble of analyses which can be used to provide initial conditions for an ensemble forecast. This has the advantage that initial condition uncertainties are modelled at the same scale as that of the forecast model, and it will be demonstrated here that this leads to an improvement in short-range probabilistic forecasts over the currently-used operational system. Moreover, it will be shown that combining KENDA with the currently-used system further improves the probabilistic forecasts, and that this improvement remains up to around 15 hours.

In order to account for uncertainties in the model itself, stochastic physics is being introduced into COSMO-DE-EPS. First results from comparing the effect of various different methods will be shown, focussing on their effect on short-range probabilistic forecasts of surface variables, and of variables relevant to the generation of renewable energy.